Failure of INSAT-2D

308. SHRI NARENDRA MOHAN: Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that there was a helium tank leakage before the launching of INSAT-2DR

(b) if so, whether due notice was taken of the same or the launch of INSAT-2D was undertaken ignoring this leakage;

(c) whether this leakage contributed to the problem of INSAT-2D after the launch, or any other causes were responsible for this; and

(d) if so, the main causes of the failure of INSAT-2D and what corrective steps have been taken to ensure that such a situation does not recur?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY AND THE MINISTER OF STATE OF THE MINISTRY OF POWER (SHRI YOGINDER K. ALAGH): (a) to (d) Indian National Satellite-2D (INSAT-2D) was successfully launched on June 4, 1997 without any hitch in the right orbit and was working satisfactorily till September 30, 1997. On October 1, 1997, an unexpected massive short circuit in the power system was observed. The satellite was observed to generate only 25 to 30% of the rated power. The south solar array which is required to track the sun was found to be stuck in one position. The non-availability of sufficient on-board power created consequential difficulties in the thermal management of the spacecraft which in turn led to the malfunctioning of the propellant system of the spacecraft. This in turn resulted in depletion of fuel and the satellite was declared inoperable on October 5, 1997.

Several technical committees have been set up to carryout detailed analysis of the failure. A senior level Committee with technical experts drawn from several academic and R&D institutions has also been set up. The Committee is expected to complete its task by January, 1998.

A detailed component level and circuit level review of the power system is being carried out. if any deficiencies come to light, appropriate modifications will be carried out in the future satellites. Further, the mechanisms for process control during fabrication and also the quality audit are being strengthened.

Proposal to launch IRS-1D

309. SHRI GHUFRAN AZAM: Will the PRIME MINISTER be pleased to state:

(a) whether Government propose to launch IRS-1D a Korean satellite and also propose to contact to lease out 11C-band transponders to INTELSAT;

(b) if so, the details thereof;

(c) whether plans to launch satellite with the help of foreign countries will affect our indigenous production;

(d) if so, the reaction of Government thereto?

THE MINISTER OF STATE IN THE MINISTRY OF' SCIENCE AND TECHNOLOGY AND THE MINISTER OF STATE OF THE MINISTRY OF POWER (SHRI YOGINDER K. ALAGH): (a) and (b) Indian Remote Sensing Satellite-ID (IRS-1D) has been launched into polar orbit by Polar Satellite Launch Vehicle-Cl (PSLV-C1) on 29th September 1997 and the satellite is working well. Preparations-for the next flight PSLV-C2 have commenced. In addition to the Indian satellite IRS-P4, it will carry KITS AT 3 of South Korea.

KITSAT-3 is the first foreign satellite to be launched by PSLV on a commercial basis.

A contract has been signed with M/s. International Telecommunications Satellite Organisation (INTELSAT) for the lease of 11 transponders of 36 MHz capacity on commercial terms using INSAT-2E. The period of lease is ten years and the value of the contract is around US Dollars One Hundred Million.

(c) No, Sir; indigenous production is progressing as per plan.

(d) Does not arise.

Performance of Launch Vehicles

310. SHRI NARENDRA MOHAN: Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that launch vehicles are not performing as they were scheduled to perform since August, 1979;

(b) whether these launch vehicles have suffered from under-performance or they have failed at first-stage; and

(c) if so, the reason therefor?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY AND THE MINISTER OF STATE OF THE MINISTRY OF POWER (SHRI YOGINDER K. ALAGH): (a) to (c) Significant progress has been made in the launch vehicle development in the country since the first flight of Satellite Launch Vehicle-3 (SLV-3) in 1979. Capability of launching satellites has been enhanced from a 40kg payload into low earth inclined orbit in 1979 to 1200 kg Polar Sunsynchronous stellites in 1997.

The launch hisiory of indian launch vehicles is given below:

SI. No.	Launch Vehicle	Satellite	Date of Launch	Launch Wt. (Kg.)
1.*	SLV3-E1	RTP	10.08.79	35.0
2.	SLV3-E2	RS-1	18.07.80	35.0
3.	SLV3-D1	RS-D-1	31.05.81	38.5
4.	SLV3-D2	RS-D-2	17.04.83	41.5
5.*	ASLV-D1	SROSS-I	24.03.87	144.8
6.*	ASLV-D2	SROSS-II	13.07.88	.149.1
7.	ASLV-D3	SROSS C	20.05.92	106.0
8.*	PSLV-D1	IRS-1E	20.09.93	847.0
9.	ASLV-D4	SROSS-C2	04.05.94	U3.0
10.	PSLV-D2	IRS-P2	15.10.94	804.0
11.	PSLV-D3	IRS-P3	21.03.96	922.0
12.	PSLV-C1	IRS-1D	29.09.97	1203.0

'Unsuccessful launches

Launch vehicles cannot be tested completely on ground and a few developmental flights are the only means to characterise all systems behaviour under dynamic environment. It is in these flights the limitations of certain systems come to light. For example, the first SLV-3 flight had shown a problem in the second stage control system; the Second Augmented Satellite Launch Vehicle (ASLV) flight provided a lot of understanding of technical complexities during atmospheric flight; inspitc of most of the system working normally, Polar Satellite Launch Vehicle-Dl (PSLV-D1) could not orbit the satellite; the post flight analysis highlighted the need for smoother transition from second stage to third stage and further qualification of software. On the other hand, in the case of the first ASLV flight, even though no definite reason for the non-ignition, of the core motor could be established, all possible causes were revisited. World over, the experience of various launch vehicles have experienced failures in the initital attempt and is not unique to India.

Today India can launch all its remote sensing satellites by its own launcher, PSLV, which were earlier launched by